



US005363204A

United States Patent [19]**Millman**[11] **Patent Number:** **5,363,204**[45] **Date of Patent:** **Nov. 8, 1994**[54] **FACSIMILE MACHINE HAVING USER HELP CAPABILITY**[75] **Inventor:** Mark E. Millman, Bayville, N.J.[73] **Assignee:** AT&T Bell Laboratories, Murray Hill, N.J.[21] **Appl. No.:** 919,072[22] **Filed:** Jul. 23, 19925,072,309 12/1991 Brown 358/403
5,105,284 4/1992 Sakata et al. 358/404**OTHER PUBLICATIONS**"The Complete FAX/9600", User's Guide, Version 2.1
The Complete PC, Inc. pp. 1-15.*Primary Examiner*—Edward L. Coles, Sr.*Assistant Examiner*—Fan Lee*Attorney, Agent, or Firm*—John A. Caccuro**Related U.S. Application Data**

[63] Continuation of Ser. No. 495,196, Mar. 19, 1990, abandoned.

[51] **Int. Cl.:** H04N 1/00[52] **U.S. Cl.:** 358/406; 358/444;
358/434; 358/400[58] **Field of Search** 358/400, 401, 403, 404,
358/405, 406, 444, 437, 434, 435, 436, 438, 440;
355/202, 203, 204, 205[56] **References Cited****U.S. PATENT DOCUMENTS**2,642,492 6/1953 Hammond, Jr. 358/479
4,587,633 5/1986 Wang et al. 358/403
4,648,062 3/1987 Johnson et al. 364/900
4,774,590 9/1988 Haganuma et al. 358/401
4,896,223 1/1990 Todome 358/468
4,937,762 6/1990 Todome 358/468
4,965,676 10/1990 Ejiri et al. 358/406[57] **ABSTRACT**

A facsimile machine includes a help feature for providing the user with a hard copy of "help" information, outputted via the facsimile printer, relevant to the existing operating mode of facsimile machine at the time the help feature was activated. If the help feature is activated when the facsimile machine is in a standby mode, the user is prompted to request a menu or to select the type of help information to be outputted in facsimile form. If the help feature is activated when the facsimile machine is in an active operating mode, (e.g., programming, service or error modes), the outputted help information is selected by the facsimile machine based on machine sensor status and/or the present software state. The help feature is activated by a predesignated push button or access code.

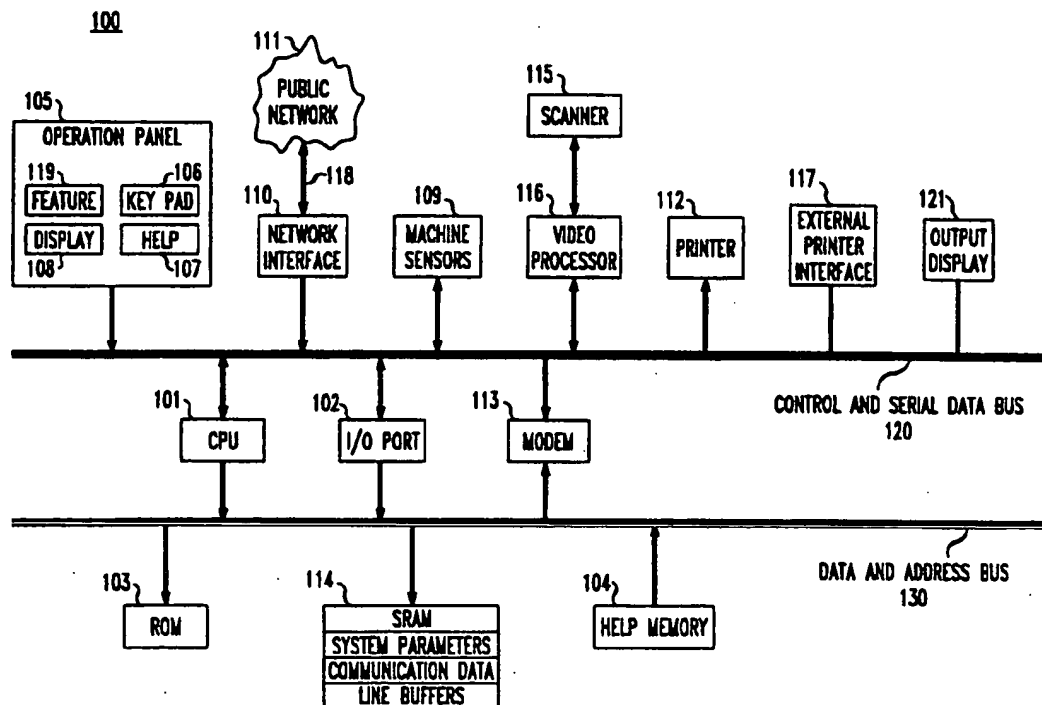
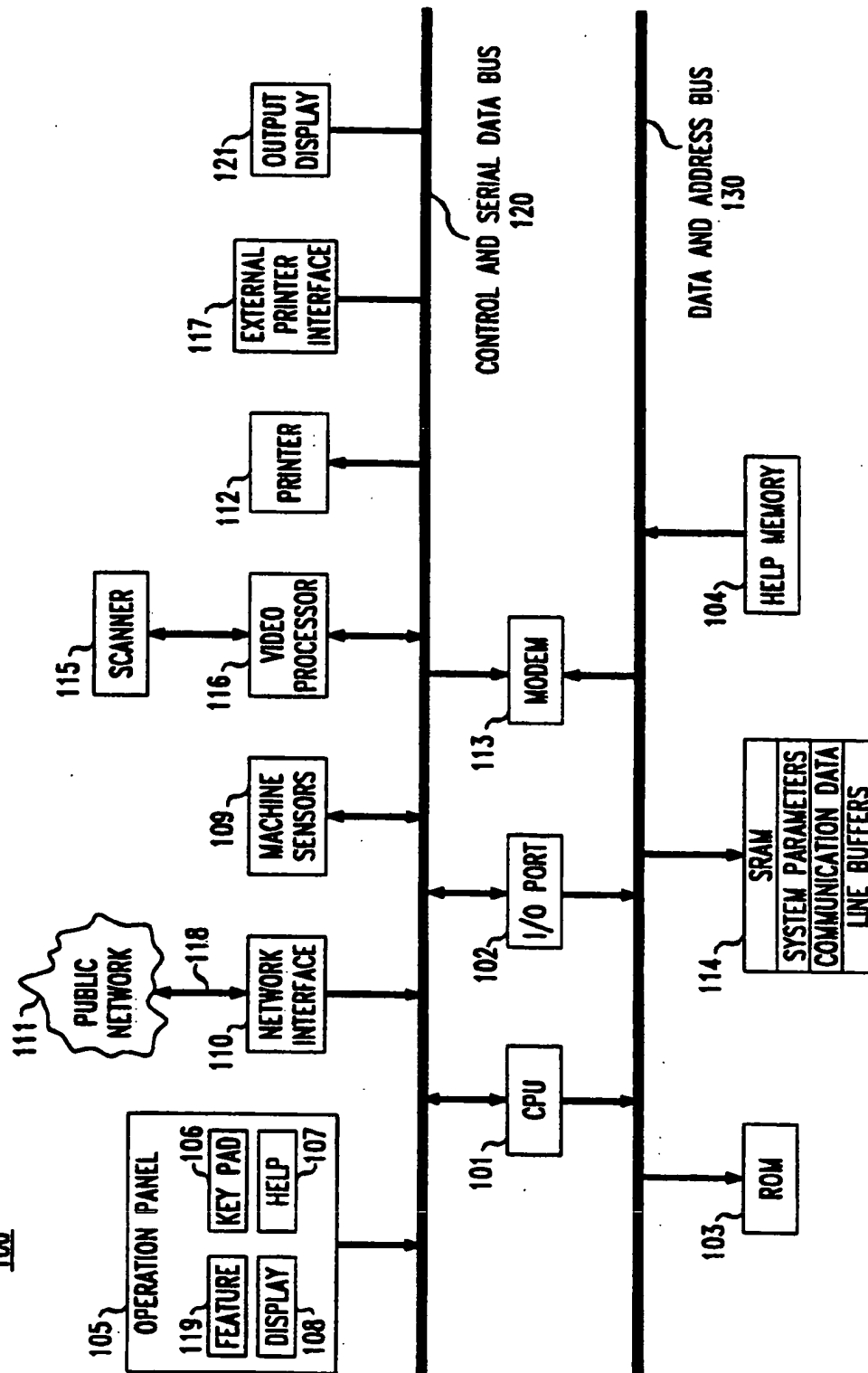
20 Claims, 8 Drawing Sheets

FIG. 1 100



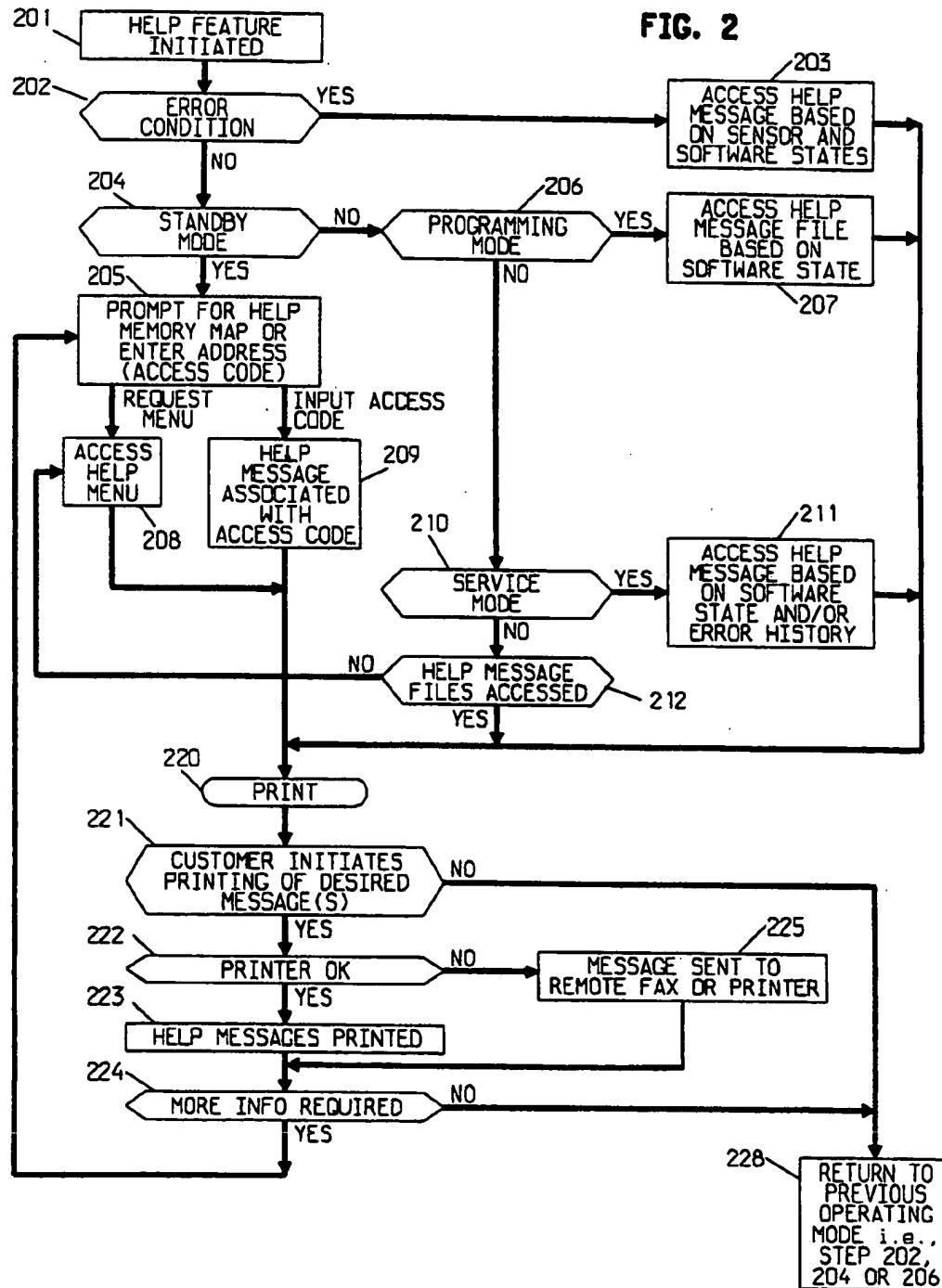


FIG. 3

HELP MENU

ACCESS CODE	PROGRAMMING MODE	CONDITION
01	INFO ON PROGRAMMING PROCEDURES	SOFTWARE STATE (SW)
02	POLLING	
03	POLLING RECEPTION	
04	POLLING-TURNAROUND POLLING	
310 { 05	POLLING-POLLING FILES	
06	POLLING STANDBY	
07	POLLING CODES	
10	SETTING TIME AND DATE	
312 { 11	LIST OF FEATURE/PROGRAM CODES	
.		
.	ERROR MODE	
321 { 23	ORIGINAL DOCUMENT FEED JAM	SW AND/OR SENSOR STATES
320 { 24	COMMUNICATION ERROR	SW
25	OUT OF PAPER	SENSOR STATE
26	COVER OPEN	
27	THERMAL PAPER JAM	
.		
.	SERVICE MODE	
330 { 34	SERVICE MODE FEATURE LIST	SW (SERVICE MODE PROG.)
35	PROGRAM SYSTEM PARAMETERS	
36	SET PULSE WIDTH	
37	AUTO DIAGNOSTICS 1	
38	AUTO DIAGNOSTICS 2	
.		
.	COMMUNICATION MODE	
335 { 40	BASIC TRANSMISSION	
41	BASIC RECEPTION	
42	AUTO ANSWER OPERATION	SW, SENSOR STATE
43	OFF HOOK DIAL	SW, SENSOR STATE
44	REDIAL OPERATION	SW, SENSOR STATE
.		
.	MISCELLANEOUS INFORMATION	
340 { 52	PARTS LIST	N/A
53	FAX MAINTENANCE	N/A
00	HELP MENU	N/A

FIG. 4

ORIGINAL DOCUMENT FEED JAM
OPEN SCANNER COVER BY PRESSING COVER BUTTON
⋮
REMOVE PARTIALLY FED OR JAMMED ORIGINAL DOCUMENTS
CLOSE SCANNER COVER

FIG. 5

SETTING THE DATE AND TIME ACCESS CODE 10

YOUR 9025FX MACHINE HAS AN INTERNAL CLOCK THAT DISPLAYS THE TIME ON THE LCD AND PRINTS THE DATE ON EACH PAGE YOU TRANSMIT. THE CLOCK IS ACCURATE TO ± 40 SECONDS PER MONTH.

TO ADJUST THE CLOCK:

- 1 PRESS THE PROGRAM KEY.
- 2 ENTER 90 AT THE DIALPAD TO ENTER ADMIN MODE.
- 3 ENTER 10.
THE DISPLAY AT THE RIGHT WILL APPEAR. YOU CAN EITHER CHANGE THE ITEM AT THE BLINKING CURSOR, OR ACCEPT THE DISPLAYED DATA.
- 4 TO ACCEPT THE DISPLAYED DATA AND RETURN TO READY MODE, PRESS SAVE.
IF YOU NEED TO CHANGE THE DATA, GO ON TO STEP 5.
- 5 CHANGE THE TIME AT THE BLINKING CURSOR.
TO CHANGE THE MONTH:
PRESS # TO INCREMENT.
PRESS * TO DECREMENT.
EXAMPLE: TO CHANGE APRIL TO MAY,
PRESS # ONE TIME.
- 6 TO MOVE THE CURSOR TO THE NEXT ITEM, PRESS YES.
- 7 TO CHANGE A NUMERICAL ITEM, PRESS THE DESIRED NUMBER ON THE DIALPAD.
- 8 WHEN YOU ARE SATISFIED WITH THE DISPLAY, PRESS SAVE.
- 9 PRESS PROGRAM TO RETURN TO STANDBY MODE.

PROGRAM	---
---------	-----

ADMINISTRATION	---
----------------	-----

DATE & TIME
APR 14 '88 11:30

DATE & TIME
SAVED

DATE & TIME
MAY 14 '88 11:30

DATE & TIME
MAY 14 '88 11:30

DATE & TIME
SAVED

FIG. 6

CODE ACCESSSED FEATURES		FEATURE CODE LIST	
CODE		PRESS "FEATURE" AND CODE #'S	
		FEATURE OR PROGRAM	
	0	BASIC TRANSMISSION	
	1	SEND LATER TRANSMISSION	
	2	POLLING STANDBY	
	3	RELAY BROADCAST REQUEST	
	4	CONFIDENTIAL TRANSMISSION	
	5	VOLUME ADJUSTMENTS	
601	6	TRANSMISSION SPEED ADJUSTMENT	
	10	DATE AND TIME ADJUSTMENT ←	
	11	TTI ADMINISTRATION	
	12	RTI ADMINISTRATION	
	13	CSI ADMINISTRATION	
	14	TELEPHONE LINE TYPE SELECTION	
	15	AUTO-ANSWER DELAY	
	16	LOCAL TEL # SETTING	
	20	TTI ON/OFF	
	21	BATCH NUMBERING ON/OFF	
	22	VOICE AND FAX CALLS ON TCR	
	23	TRANSMISSION REPORT ON/OFF	
	24	FINE RESOLUTION ON/OFF IN COPY MODE	
	25	ERROR CORRECTION MODE ON/OFF	
	27	LIMITED ACCESS ON/OFF	
	29	SUBSTITUTE RECEPTION ON/OFF	
	30	OUTWARD DIALING RESTRICTION	
	31	PASSWORD REQUEST ON/OFF	
	32	DIALING RESTRICTION PASSWORD ADMINISTRATION	
	34	LIMITED ACCESS LIST PROGRAMMING	
	40	TCR PRINTOUT	
	41	TELEPHONE LIST PRINTOUT	
	42	KEYSTROKE PROGRAM LIST PRINTOUT	
	43	LIMITED ACCESS LIST PRINTOUT	
	50	VOICE MESSAGE ADMINISTRATION	
	51	PLAY BACK VOICE MESSAGE	
	60	POLLING LIST PRINTOUT	
	61	ERASE POLLING RECORD	
	62	POLLING ID CODE	
	80	ERROR CODE DISPLAY	
	81	COMMUNICATED PAGE COUNT DISPLAY	
	82	SCANNED AND PRINTED PAGE COUNTER DISPLAY	
		BUTTON ACCESSSED FEATURES	
		BROADCAST	
		POLLING	
		VOICE REQUEST	
		CONTRAST	
		RESOLUTION	
		HALFTONE	
		NOTIFY	
		AUTO ANSWER/MANUAL ANSWER	
		SPEED DIAL	
		QUICK DIAL	
		GROUP DIAL	
		VOICE MESSAGE	
		HELP	

FIG. 7

BASIC TRANSMISSION PROCEDURE

1. CONFIRM THAT "INSERT DOCUMENT" IS DISPLAYED.
2. PLACE THE DOCUMENT INTO THE ADF (AUTOMATIC DOCUMENT FEEDER) FACE DOWN.
3. SELECT THE DESIRED CONTRAST AND RESOLUTION.
4. ENTER THE NUMBER OF PAGES AND PRESS **[YES]** , IF REQUIRED.
5. ENTER THE TELEPHONE NUMBER, USING THE KEYPAD OR THE TELEPHONE; OR PRESS DESIRED QUICK DIAL KEY; OR PRESS **[SPEED DIAL]** + ENTER DESIRED SPEED DIAL NO.
6. PRESS **[START]** .
7. IF THE LINE IS BUSY, THE NUMBER WILL BE REDIALED. TO REDIAL IMMEDIATELY, PRESS **[PAUSE/REDIAL]** THEN **[START]** .

FIG. 8

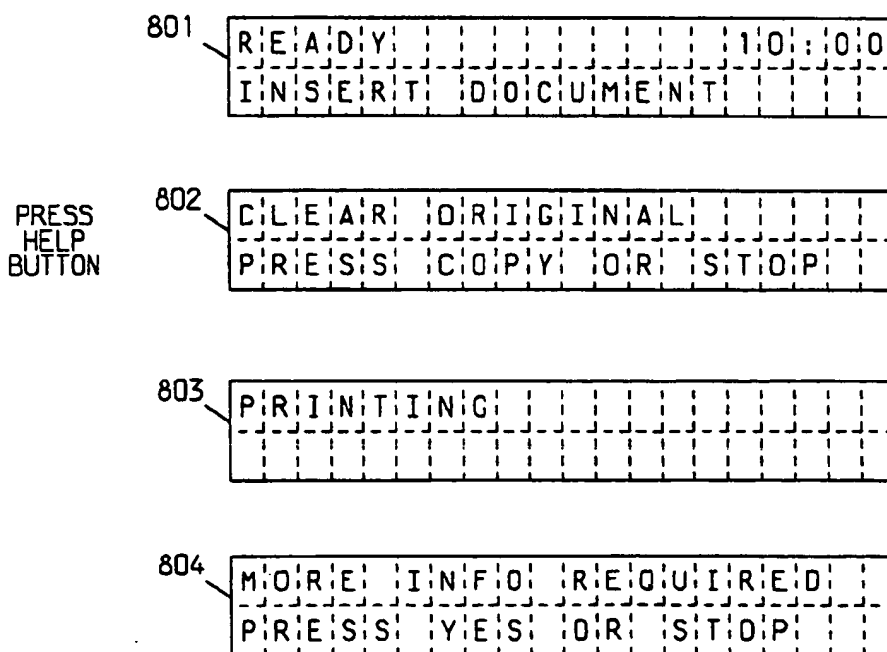


FIG. 9

DATE AND TIME ADJ FEATURE

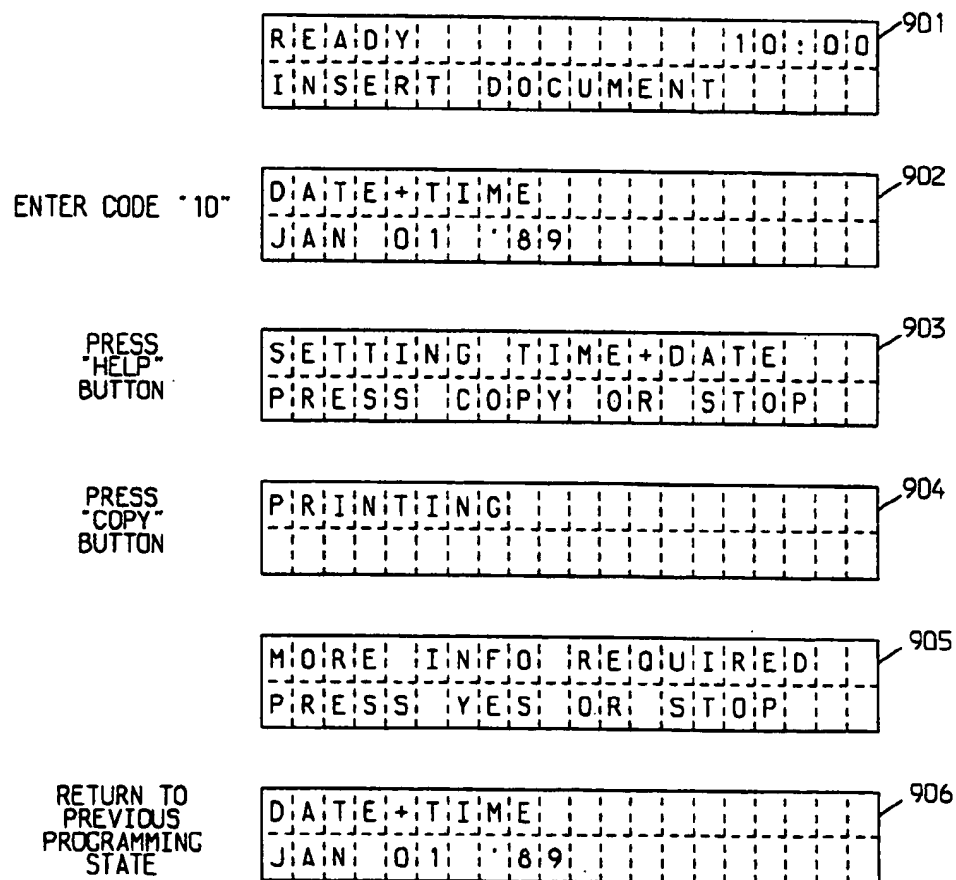


FIG. 10

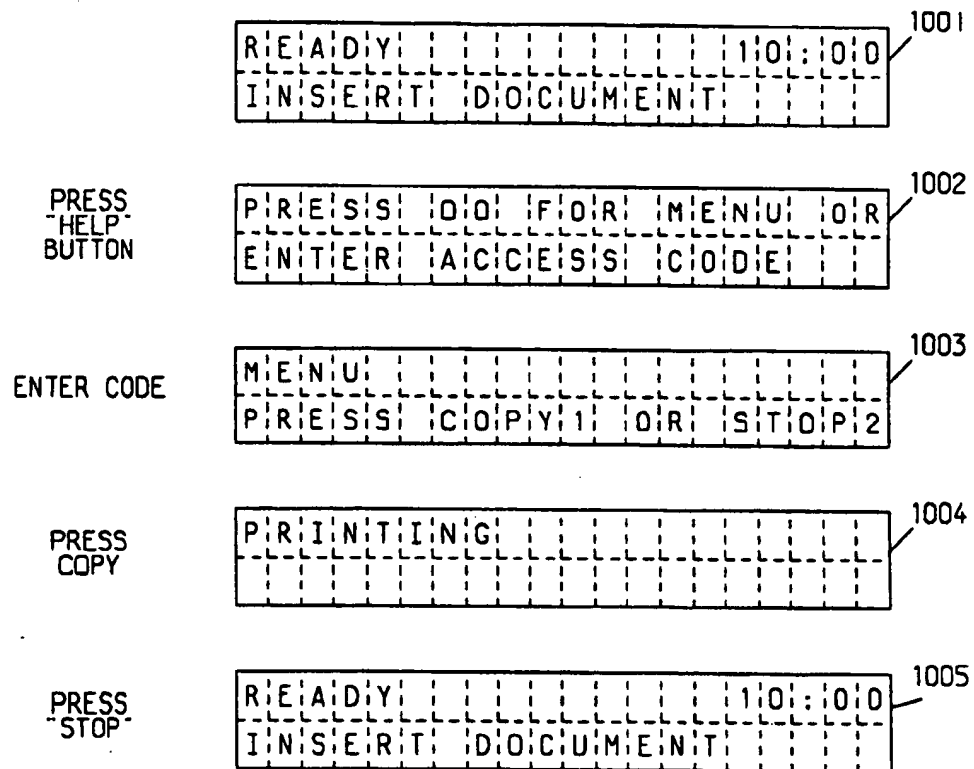
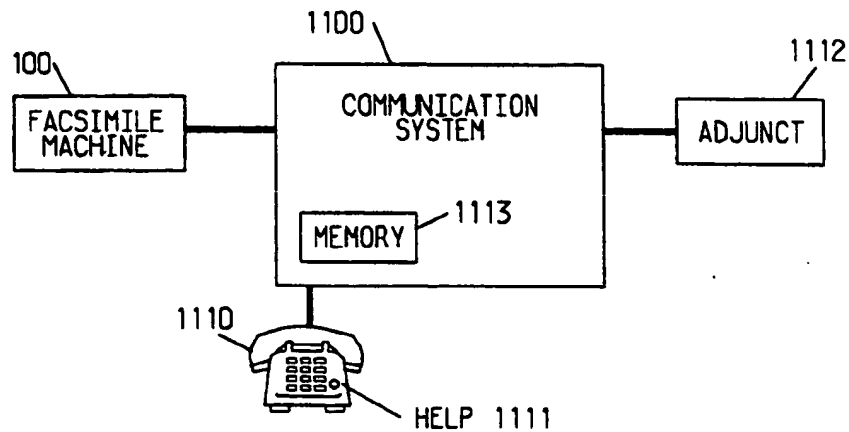


FIG. 11



FACSIMILE MACHINE HAVING USER HELP CAPABILITY

This is a continuation of application Ser. No. 07/495,196, filed on Mar. 19, 1990.

TECHNICAL FIELD

The present invention relates to facsimile machines and, more particularly, to the diagnostic capabilities of facsimile machines.

BACKGROUND OF THE INVENTION

All facsimile machines available today have the basic capability of transmitting and receiving facsimile images. Many of today's facsimile machines have added features to the basic capabilities. As a result, facsimile machines are available with numbers of features which can enhance the capability of the machine, make it more useful for different applications, and save the user time and money. Unfortunately for the user, the operation of these features is not always self-evident and the user must refer to the equipment manual for feature operation instructions. If the equipment manual describing the use of these features is not available, the user is left to trial and error. Sometimes the user will seek more information by calling a service number, which may result in maintenance costs to the user. With a lack of information readily available, many facsimile machine features are never used, and the full advantage and utility of the facsimile machine is never realized.

In other situations, errors or problems may occur during the operation of the facsimile machine which may require some user action. Very often the user will require more information to resolve the problem. Typically, the user must search through the equipment manual, if available, or read a brief cryptic message on an LCD display (if the machine has a display capability) to determine and correct the problem. Often, the procedure required to resolve a problem is simple, but unfortunately the user does not have the required information at hand. As a result, customer satisfaction suffers and costly service calls may occur.

SUMMARY OF THE INVENTION

The present invention provides an improved method and apparatus for a facsimile machine which enables a user to access, in real time, information about the various operating modes of the facsimile machine, this and similar types of information being hereinafter collectively referred to as "help" information. For example, the user can access preprogrammed information on the use of features, feature programming, machine errors or other malfunctions of the facsimile machine. My invention recognizes that the printer of the facsimile machine is an ideal means for outputting to the user information regarding the various operating modes and other miscellaneous information of the facsimile machine.

According to my invention, a user help feature is added to a facsimile machine to provide a user with a printed facsimile message including information which is relevant to the operation of the facsimile machine. In one embodiment, if the help feature is activated when the facsimile machine is in a standby operating mode, the user is prompted to request a menu or to select the type of information to be outputted in the facsimile message. If the help feature is activated when the facsimile machine is in an active operating mode (e.g.,

feature programming, service programming, error condition, and communication modes), the outputted information is selected by the facsimile machine based on the current or previous machine sensor status and/or the present software states. The help feature may be activated by a predesignated push button, access code or by using other methods.

According to another embodiment, my invention is embodied in a communication system which includes a facsimile machine to output user help feature messages. A system user at a system terminal may activate the help feature to obtain a facsimile copy of preprogrammed information associated with various operating modes of the system.

BRIEF DESCRIPTION OF THE DRAWING

In the drawing,

FIG. 1 shows an illustrative block diagram of a facsimile machine useful in describing the present invention;

FIG. 2 is a program flow chart describing the operation of the help feature of the present invention;

FIG. 3 is a help message state table listing the various help messages which can be accessed by user-entered codes or are retrieved as a function of the software and/or sensor states of the facsimile machine;

FIG. 4 is an example of a detailed help instruction or message to assist the user in clearing an original document feed jam condition in the facsimile machine;

FIG. 5 is an example of a detailed help message to assist the user to set the date and time on a display of the facsimile machine;

FIG. 6 is an example of a feature code list which can be accessed via the help feature;

FIG. 7 is an example of a help message to assist the user to set up the basic transmission mode of the facsimile machine;

FIGS. 8, 9 and 10 show illustrative messages which are displayed by the facsimile machine at various points in the program flow chart of FIG. 2; and

FIG. 11 shows an alternate embodiment of the present invention where a facsimile machine is connected to a communication system and is used to provide a user help feature to assist in operating or diagnosing malfunctions of the key telephone system.

DETAILED DESCRIPTION

Shown in FIG. 1 is a block diagram showing the various units of a facsimile (fax) machine 100 useful in describing the present invention. The Central Processing Unit (CPU) 101 operates under program control to control the operations of facsimile machine 100. The CPU 101 controls facsimile machine 100, either directly over control bus and serial data bus 120 or through the I/O Port 102. The Read Only Memory (ROM) 103 contains the system software, or programs utilized by CPU 101 to perform the standard facsimile functions as well as the features and functions of the present invention. The Static Random Access Memory (SRAM) 114 contains memory for storing system parameters, and encoded communication data plus line buffers for passing unencoded data. The help memory 104 is a series of memory files containing information about machine programming operation and diagnostics which is stored as character data or coded facsimile image files. The facsimile image files can contain text or image messages. Character data can be translated to text messages composed of characters contained in a font set or character

generator. These files are used to generate the different help instruction messages used by the present invention. CPU 101 communicates, in a well-known manner, with ROM 103, SRAM 114, help memory 104 and modem 113 via Data and Address bus 130.

The Operation Panel (OP) 105 contains key pad buttons 106 and one or more feature access buttons 119, such as the Stop and Copy buttons. Another such feature access button is Help button 107. Activation of these feature buttons and key pad buttons enables the user to enter input commands or requests to CPU 101. The operation panel 105 may include a display 108 to provide output messages to the user typically using a Liquid Crystal Display (LCD). The operation panel 105 may also include one or more Light Emitting Diodes (LED) to display various feature or machine status. Output messages can also be communicated through audible or voice messages transmitted through a speaker or telephone handset.

Machine sensors 109 are devices (e.g., photointerrupt sensors or reflective photosensors) which detect the position of the original document and facsimile paper, paper cutter, and facsimile machine covers and which, depending on their state, can indicate error conditions such as original document jam, thermal copy jams, paper cutter jams or cover open condition.

CPU 101 communicates, in a well-known manner, with operation panel 105, network interface 110, machine sensors 109, video processor 116, printer 112, external printer interface 117 as well as I/O port 102 and modem 113 over control and serial data bus 120.

Facsimile machine 100 generates a hard copy of received facsimile data, i.e., facsimile messages, using printer 112 (e.g., a thermal head printer), in a well-known manner as briefly described hereinafter. The network interface 110 couples facsimile data over one or more facilities connected to a switched network, for example, a public switched telephone network 111. The Printer 112, for example, is used to print facsimile messages or images on a paper medium. These images result from facsimile data which arrives over network 111. In a well-known manner, this facsimile data is coupled through network interface 110, demodulated by the modem 113, passed through the SRAM 114 communication memory, decoded by the CPU 101, stored in the SRAM 114 buffer memory, and sent to printer 112 for printing or, alternatively, output display 121. An external printer (not shown) can be connected via interface 117 to facsimile machine 100.

Facsimile images are transmitted from facsimile machine 100 in the standard manner. The scanner 115 senses image data from the document to be transmitted and converts it to analog signals. The video processor 116 converts these analog facsimile signals to digital facsimile data. These data are processed through the I/O port 102, where they are passed to CPU 101 via the SRAM 114 buffer memory. The CPU 101 sends the data to modem 113 via the SRAM 114 communication memory. The data is sent from modem 113 through network interface 110 to network 111.

Because the operations of the above-mentioned units of the facsimile machine are well known, their operation will not be further described. However, where the operation of any of these units is modified in accordance with the present invention, that unit's operation will be described more completely. Thus, using the figures and description of this specification as a guide, the operations of the present invention should be integrated into

the hardware and program structure of the facsimile machine so as to compatibly cooperate with other features and operations of the facsimile machine. In the following description, the first digit of an element's reference number designates the figure where the element is located (e.g., CPU 101 is located in FIG. 1).

FIG. 2 is a flow chart describing the operation of the present invention. According to the present invention, facsimile machine 100 includes a help feature for providing the user with a hard copy of help information, outputted via the facsimile printer, or transmitted to a remote facsimile terminal, relevant to the existing operating mode of facsimile machine 100 at the time the help feature was activated. Alternatively, the help information may be outputted by an output display 121. If the help feature is activated when the facsimile machine is in an active operating mode (e.g., programming, service, communication or error modes), the outputted information is selected by the facsimile machine based on machine sensor status and/or the present software state. The help feature is activated by a predetermined push button or access code.

When the facsimile machine is turned on, it enters a standby mode. During this standby mode, the display 108 outputs a message such as 801 indicating that the facsimile machine is ready for communication or programming. Assume that the user attempts to send a document and in the course of scanning, the original document jams. To determine the problem and how to clear it, the user, in step 201, initiates or activates the help feature by pressing help button 107. In step 202, CPU 101 checks sensors 109 and the particular software state of the operating program (in ROM 103) to determine if an error condition exists. In our example, the condition of paper sensors (part of 109) coupled with the immediate history of the operation of the feed rollers (part of scanner 115) indicates an original document jam. Since an error condition exists, in step 203, CPU 101 accesses the appropriate help instruction or message 321 from section 320 of the FIG. 3 table. CPU 101 then causes the "clear original" message 321 to be displayed on display 108 as shown in 802. CPU 101 may also output an audible alarm to the user.

The help feature then enters the print stage 220. In step 221 the user is prompted, by message 802, to initiate the printing of any help message files. If the user is familiar with how to clear an original document jam in the facsimile machine, he or she can exit from the help feature by pressing a stop button on operation panel 105 (or equivalent operation) and the machine returns to the original state. If, however, the user needs details on how to clear the jam then he or she makes an information request by pressing the copy button or alternate equivalent operation. The CPU 101 then checks, in step 222, if the printer 112 is operational (i.e., paper loaded, no thermal paper jam or cutter error).

If the printer 112 is operational, then, in step 223, a copy of a detailed help message or instructions (similar to that shown in FIG. 4) would be printed for the user. During the printing process the display appears as shown in 803. The help instructions shown in FIG. 4 may be, illustratively, the type of information typically found in the facsimile machine equipment manual. This information may be in textual and/or graphical form: If more information is required by the user, then in step 224 the user is given an option to select the information required. This is shown by the display 804. If the user desires more information, control returns to step 205

where the user can access a help menu (FIG. 3) or enter an access code.

In step 222, if the printer 112 is not operational, then in step 225 CPU 101 sends the information to a previously-designated remote facsimile machine for output or to local printer connected via interface 117. In step 224, if no additional information is required, CPU 101 appropriately returns to the original machine state, prior to help being initiated.

The following paragraphs describe the operation when the help feature is activated after the user has enabled a programming mode. The programming mode can be enabled by pressing program button and the program code or pressing a dedicated "feature" button if provided on operating panel 105.

For example, assume that the user would like to program the facsimile machine 100 by setting the current date and time (e.g., as shown on the display 108). Initially, the display 108 is indicating the standby mode as shown by the "ready" message 901. The user then enables the program mode and the message 902 is displayed. Assume that the user knows that feature code 10 is the code required to initiate the "date and time adjustment" feature (see 601 of FIG. 6). The user then enters feature code 10 via key pad 106 and display 108 outputs the present date and time as shown by message 902. If the user would like to set or change either the displayed date or time or both, but does not know how to change the settings, he or she could press the help button 107.

When the user presses the help button 107, CPU 101 determines, in step 202, that there is no error condition and determines, in step 204, that the machine is not in the standby mode. CPU 101 determines, in step 206, that the machine is in the programming mode and, in step 207, displays message 903 based on the particular state of the software associated with the then active "date and time adjustment" feature 10 and accesses Help memory 104 to obtain user instruction on how to adjust date and time.

The help feature then enters the print stage 220. Steps 221-228 operate as previously described. Shown in FIG. 5 is an illustrative copy of the date and time adjustment instructions which may be outputted to the user via printer 112. During printing, display 108 displays message 904.

The following example describes how a user can access a help message based on entering an access code for a desired message.

Assume that an inexperienced user needs instructions on basic facsimile transmission procedures. The facsimile machine 100 would be in the standby mode 204 with message 1001 being displayed on display 108. When the user presses the help button 107, step 201, CPU 101 checks the machine sensors 109 and software state in step 202, for a prevailing error condition. Since there is no prevailing error condition and since the user is not active in the programming mode, CPU 101 proceeds to step 205. In step 205, CPU 101 prompts the user with message 1002 to determine if a help message menu (FIG. 3) is desired. The user may then request a help menu by entering the code 00 as indicated on the displayed message 1002. The user may also request a specific message by entering an appropriate access code if known (i.e., one of the access codes listed in FIG. 3). Note, there could possibly be other means of requesting specific messages (e.g., depressing combinations of other buttons on operating panel 105).

During step 205, assume our user requests the help menu in step 208. CPU 101 accesses help memory 104 to obtain the help message menu of FIG. 3. CPU 101 then enters the printing stage 221-223. The user is prompted by message 1003 to initiate printing of the help message menu by pressing the copy button (step 221). After the user has perused the copy of the help menu, FIG. 3, the user can seek more information by pressing Yes in response to display 1006 and sees display 1002 (step 224). He or she then selects the access code of the "basic transmission" feature which the user needs. The user locates "basic transmission" feature under the communication modes, section 335 of FIG. 3, and enters access code 40 on key pad 106 to obtain additional help messages or instructions. In response to the user access code selection in step 209, CPU 101 accesses the instructions associated with the selected access code and user sees display 1004. FIG. 7 illustrates the instructions which may be printed for the user using the print subroutine stage 220.

In step 221, the user is prompted by displayed message 1004 to initiate the printing of a help message by pressing the copy button. If the user chooses to stop, by pressing the stop button, the help feature is cancelled at this point and control is returned to the original state, step 228 (in this case standby mode 204). This is indicated by the displayed message 1007.

Assume, however, that the user elects to print the help message. Before printing in step 222, CPU 101 first checks that the printer 112 is functioning. If the printer 112 is not working, the help message could be sent to a remote facsimile machine via the network 111, or to a local printer connected via interface 117 to facsimile machine 100. Assuming that printer 112 is operational, the help message is printed for the user. While the help message is being printed display 108 displays the message 1005. After the help message is printed, the display message 1006 is displayed. The user then has the option, in step 224, of accessing additional help message files or cancelling the operation and returning control to the original state, step 228.

The help features may also be activated during the service programming mode of operation. An illustrative list of service mode features is shown in 330 of FIG. 3. If help feature is enabled while active in service mode programming (206), help message files will be accessed based on the current software state. Specific help messages from 330 can, alternately, be accessed by directly entering the associated access code (205,206) as described above.

In one possible embodiment, specific diagnostic messages, (e.g., see section 330), can be accessed automatically based on the previous error history of the machine, or current hardware real function.

FIG. 3 shows an illustrative list of help message files that comprise the help menu map. Help message files may have both an associated access code and "condition". These specific conditions are based on combinations of machine software and sensor 109 states. Help messages or files could be accessed directly by access code 301, or automatically based on the condition or state 302 of the machine when the help feature is initiated. The programming mode files 310, error condition mode files 320 and service mode files 330 and communication mode files 335 are examples of files which can be accessed by codes or machine (software and sensor) conditions. The programming mode files 310 include a listing of various features which can be programmed

into the machine. The programming mode files may include the illustrative list of machine features shown in FIG. 6.

Similarly, the error condition files 320 contain information on various machine errors or malfunction conditions and procedures for clearing them. Thus, each of the error condition files 320, including our previous original document jam example, can be accessed directly using access codes and by machine conditions.

Additionally, service mode files 330 which include information on service programming and maintenance procedures, could also be accessed via access codes or by machine conditions (including previous error history or current hardware malfunction). The communication mode files 335 could be similarly accessed.

The miscellaneous information files 340 may include the listing of machine parts, part numbers, and ordering information; or information on how to clean and maintain the facsimile machine. These files 340 would include information not associated with a machine software sensor state.

Each of the operating modes 310-340 may also contain sub-menus of other associated files. For example, the file on Polling (in programming files 310) may, itself, contain a menu of associated sub-files (e.g., Polling Reception, Turnaround Polling, etc.) showing the access codes and how to print instructions on these sub-files.

FIG. 11 shows a possible embodiment of the invention in a communication system, e.g., a key telephone system. In such an embodiment, the present invention may be used to access help messages associated with the operation or programming of the communication system 1110. The help messages could be stored in the facsimile machine 100 or in a memory 1113 of the communication system 1100, or in an adjunct 1112 to system 1100. The help feature may, illustratively, be initiated by entering an access code or pressing a button 1111 on a telephone station set 1110. In response to the received help signal, CPU 1115 of system 1100 selects and outputs a facsimile message to facsimile machine 100. The facsimile machine 100 may be directly connected to the telephone system 1100, or could be connected via network 1114.

Thus, in accordance with the present invention and in a manner similar to that previously described, a user at station set 1110 could initiate the help feature and obtain facsimile messages containing preprogrammed information about communication system 1100, e.g., information on system features, programming of features, communication system errors or other malfunctions of the communication system. Alternately, these messages could be obtained via an external printer device connected to the telephone system 1114.

Thus, what has been described is one embodiment of the invention. Other methods, sequences or arrangements can be used to implement the present invention by those skilled in the art without departing from the spirit and scope of the present invention.

I claim:

1. A facsimile apparatus connectable to a communication facility, comprising
 - means for outputting a facsimile transmission received over said facility as a hard copy,
 - means for displaying an information message during one of a plurality of different operating modes of said facsimile apparatus,

means for inputting a user input to said facsimile apparatus,

means for generating a help signal in response to a user input occurring during a display of a first message by said displaying means, said help signal not being transmitted over said facility,

memory means for storing programs for controlling said plurality of different operating modes of said facsimile apparatus, said memory means also storing preprogrammed help information as a plurality of information messages, each of said information messages being associated with and describing operation aspects of a different operating mode of said facsimile apparatus; and

control means for controlling the different operating modes of said facsimile apparatus and responsive to said help signal for displaying a second message via said displaying means to provide help information on said operating mode of said facsimile apparatus and requesting an additional user input, said control means responsive to said additional user input for outputting a third information message in hard copy form to the user, said third message providing more specific help information on said operating mode of said facsimile apparatus.

2. The facsimile apparatus of claim 1 wherein said inputting means is a push button.

3. The facsimile apparatus of claim 1 wherein said inputting means includes

means for dialing a communication connection over a facility connected to a second facsimile apparatus and

wherein said help signal is generated from a predesignated activation code inputted by said user using said dialing means.

4. The facsimile apparatus of claim 1 wherein said operating mode is a service mode, and said outputted third information message describes procedures of said service mode of said facsimile apparatus.

5. The facsimile apparatus of claim 1 wherein said operating mode is a programming mode, and said outputted third information message describes features of said programming mode of said facsimile apparatus.

6. The facsimile apparatus of claim 1 wherein said operating mode is an error mode, and said outputted third information message describes conditions of said error mode of said facsimile apparatus.

7. The facsimile apparatus of claim 1 wherein said operating mode is a communication mode, and said outputted third information message describes features of said communication mode of said facsimile apparatus.

8. The facsimile apparatus of claim 1 wherein said operating mode performs one or more functions under program control and said control means selects one of said plurality of information messages in response to the particular function being performed by said program when said help signal is generated.

9. The facsimile apparatus of claim 1 wherein the preprogrammed help information includes graphical information.

10. The facsimile apparatus of claim 1 wherein the preprogrammed help information includes character data.

11. A communication system comprising a controller, a plurality of terminals connected thereto and a remote facsimile apparatus, said system further comprising at said facsimile apparatus,

means for outputting a received facsimile message in hard copy form, in at least one of said plurality of terminals, means responsive to a user input for generating and transmitting a help signal to said controller during an operating mode at said at least one of said plurality of terminals, and at said controller, memory means for storing preprogrammed help information as a plurality of information messages, each of said information messages being associated with and describing a different operating mode at said at least one of said plurality of terminals, control means responsive to said help signal for outputting via said outputting means, in hard copy form, only one of said information messages to said user, said only one of said information messages outputted being selected by said control means in accordance with the operating mode of said system when said help signal is generated.

12. The system of claim 11 wherein said generating means is a push button.

13. The system of claim 11 wherein said message includes information selected from said preprogrammed help information in response to a second input from said user.

14. The system of claim 11 wherein the preprogrammed help information includes graphical information.

15. A communication system comprising a controller, a plurality of terminals connected thereto and a remote facsimile apparatus, said system further comprising at said facsimile apparatus, means for outputting a received facsimile transmission; and in at least one of said plurality of terminals; means responsive to a user input for generating and transmitting a help signal to said controller during an operating mode at said at least one of said plurality of terminals; and at said controller memory means for storing preprogrammed help information as a plurality of information messages, at least one of said information messages being associated with and describing operation aspects of an operating mode of said system, control means responsive to said help signal for outputting via said outputting means in hard copy form only one of said information messages to said user, said only one of said information messages outputted being selected by said control means in accordance with the operating mode at said at least one of said plurality of terminals when said help signal is generated, and wherein at said at least one of said plurality of terminals, said generating means includes signaling means for dialing a communication connection to said controller, and wherein said help signal is generated from a predesignated activation code inputted by said user using said signaling means.

16. The system of claim 15 wherein said first operating mode performs one or more functions under program control and said control means selects one of said plurality of information messages in response to the particular function being performed by said program when said help signal is generated.

17. The system of claim 15 including sensor means for detecting an operating condition of said system and wherein

said control means selects information for said message from said preprogrammed help information in response to an input from said sensor means.

18. A method of operating a communication system comprising a controller, a plurality of terminals connected thereto, with means for generating a help signal in response to a user input occurring during an operating mode of said system, a remote facsimile apparatus having an output means for outputting in hard-copy form a received facsimile transmission to a user, and memory means for storing help information messages associated with and describing operation aspects of different operating modes of said system, said method comprising the steps of

at at least one of said terminals, generating and transmitting a help signal to said controller in response to a user input occurring during a first operating mode of said system, and

at said controller and in response to said help signal, outputting via said outputting means, in hard copy form, only one of said information messages to said user, said only one of said information messages outputted being selected by said control means in accordance with the operating mode of the system when said help signal is generated.

19. A communication system comprising a controller, a plurality of terminals connected thereto and a remote facsimile apparatus connectable over a facility to said system, said system further comprising

at said facsimile apparatus, means for outputting a received facsimile transmission; and

in at least one of said plurality of terminals, means responsive to a user input for generating and transmitting a help signal to said controller during a first operating mode of said system; and at said controller

memory means for storing preprogrammed help information as a plurality of information messages, at least one of said information messages being associated with and describing operation aspects of an operating mode of said system,

control means responsive to said help signal for outputting via said outputting means in hard copy form only one of said information messages to said user, said only one of said information messages outputted being selected by said control means in accordance with the operating mode of said system when said help signal is generated, and

wherein at said at least one of said plurality of terminals,

said generating means includes signaling means for dialing a communication connection to said controller, and

wherein said help signal is generated from a predesignated activation code inputted by said user using said signaling means.

20. A method of operating a facsimile apparatus, comprising the steps of

storing programs for controlling said plurality of different operating modes of said facsimile apparatus and preprogrammed help information as a plurality of information messages, each of said information messages being associated with and describing

11

ing operation aspects of a different operating mode of said facsimile apparatus;
controlling the different operating modes of said facsimile apparatus;
displaying an information message during one of a plurality of different operating modes of said facsimile apparatus;
inputting a user input to said facsimile apparatus;
generating a help signal in response to said user input occurring during a display of a first message, said help signal not being transmitted over said facility;

12

in response to said help signal, displaying a second message to provide help information on said operating mode of said facsimile apparatus and requesting an additional user input; and
in response to said additional user input, printing a third information message in hard copy form to the user, said third message providing more specific help information on said operating mode of said providing more specific information on said operating mode of said facsimile apparatus.

* * * * *

15

20

25

30

35

40

45

50

55

60

65



US005283661A

United States Patent [19]

Klees

[11] **Patent Number:** 5,283,661[45] **Date of Patent:** Feb. 1, 1994

[54] **METHOD AND APPARATUS FOR ASSISTING IN THE INSTALLATION OF A FACSIMILE MACHINE**

[75] **Inventor:** Kevin J. Klees, Rochester, N.Y.

[73] **Assignee:** Eastman Kodak Company,
Rochester, N.Y.

[21] **Appl. No.:** 585,778

[22] **Filed:** Apr. 16, 1991

[51] **Int. Cl.** H04N 1/00

[52] **U.S. Cl.** 358/406; 358/400;
358/434

[58] **Field of Search** 358/400, 404, 406, 444,
358/434; 379/100; 395/12, 908, 919; 364/468

[56] **References Cited****U.S. PATENT DOCUMENTS**

4,570,035 2/1986 Pinede et al. 179/99
4,916,637 4/1990 Allen et al. 364/468

OTHER PUBLICATIONS

Publication No. JP2105749, Apr. 18, 1990, Title-Elec-
tronic Mail Terminal.

Publication No. JP1084973, Mar. 3, 1989, Title-Printer
For Instruction Manual.

Publication No. JP3029460, Feb. 7, 1991, Title-Image
Communication Equipment.

Publication No. JP62159967, Jul. 15, 1987, Title-Con-
trol Information Output System For Facsimile Equip-
ment.

Publication No. JP3239060, Oct. 24, 1991, Title-Fac-
simile Equipment.

Primary Examiner—Edward L. Coles, Sr.

Assistant Examiner—Thomas D. Lee

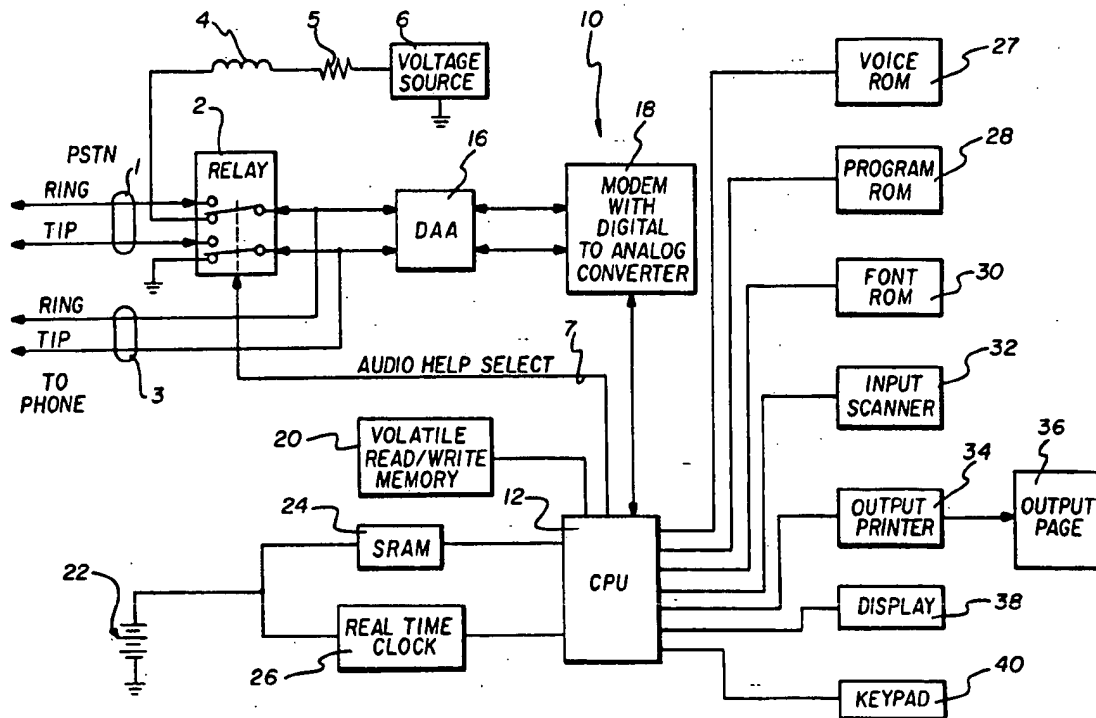
Attorney, Agent, or Firm—Thomas H. Close

[57]

ABSTRACT

Method and apparatus for detecting that a facsimile machine is being installed with stored information within the machine being used to aid the installer during installation and/or operation using either image and text information or verbal information stored in the memory of the facsimile machine.

12 Claims, 11 Drawing Sheets



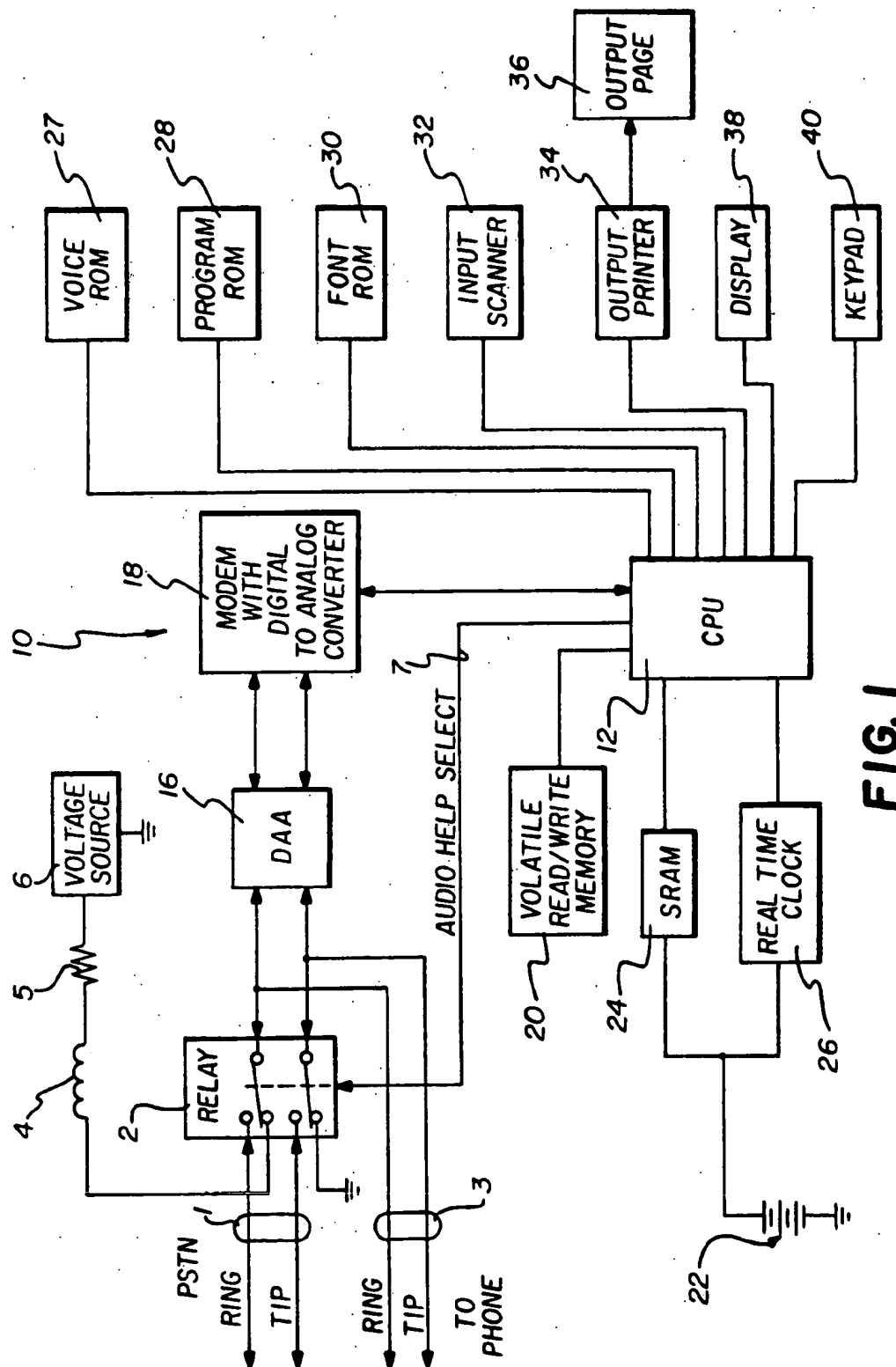
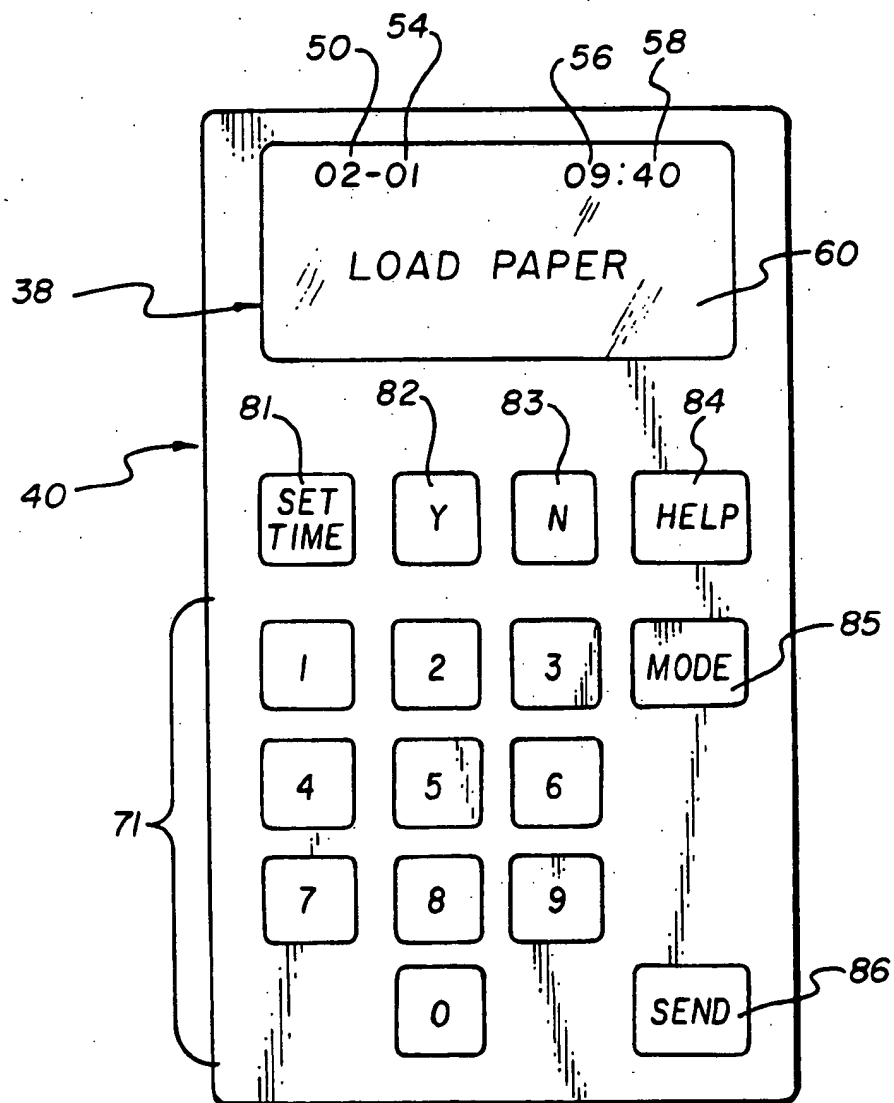


FIG. 1

**FIG. 2**

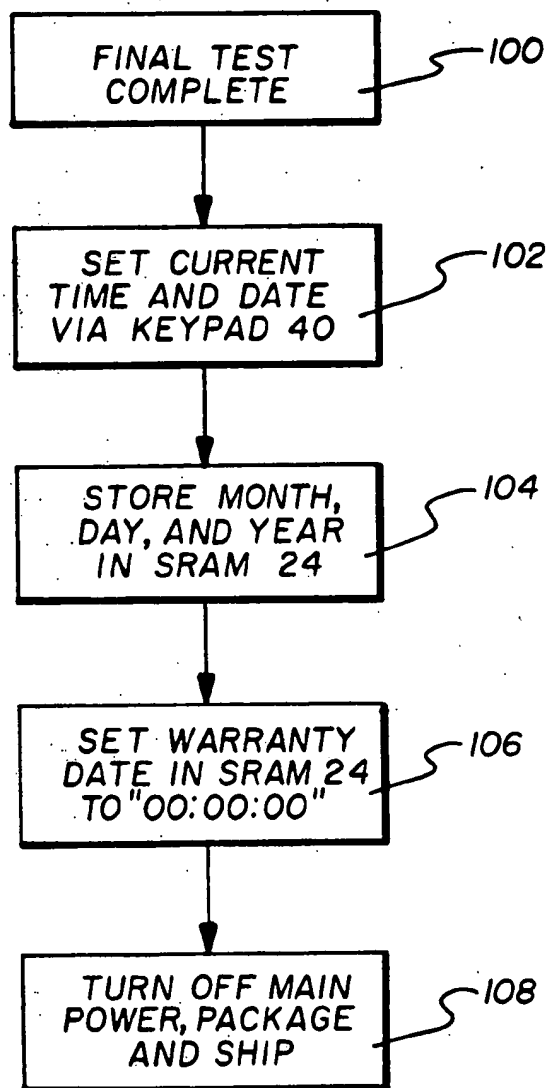
**FIG. 3**

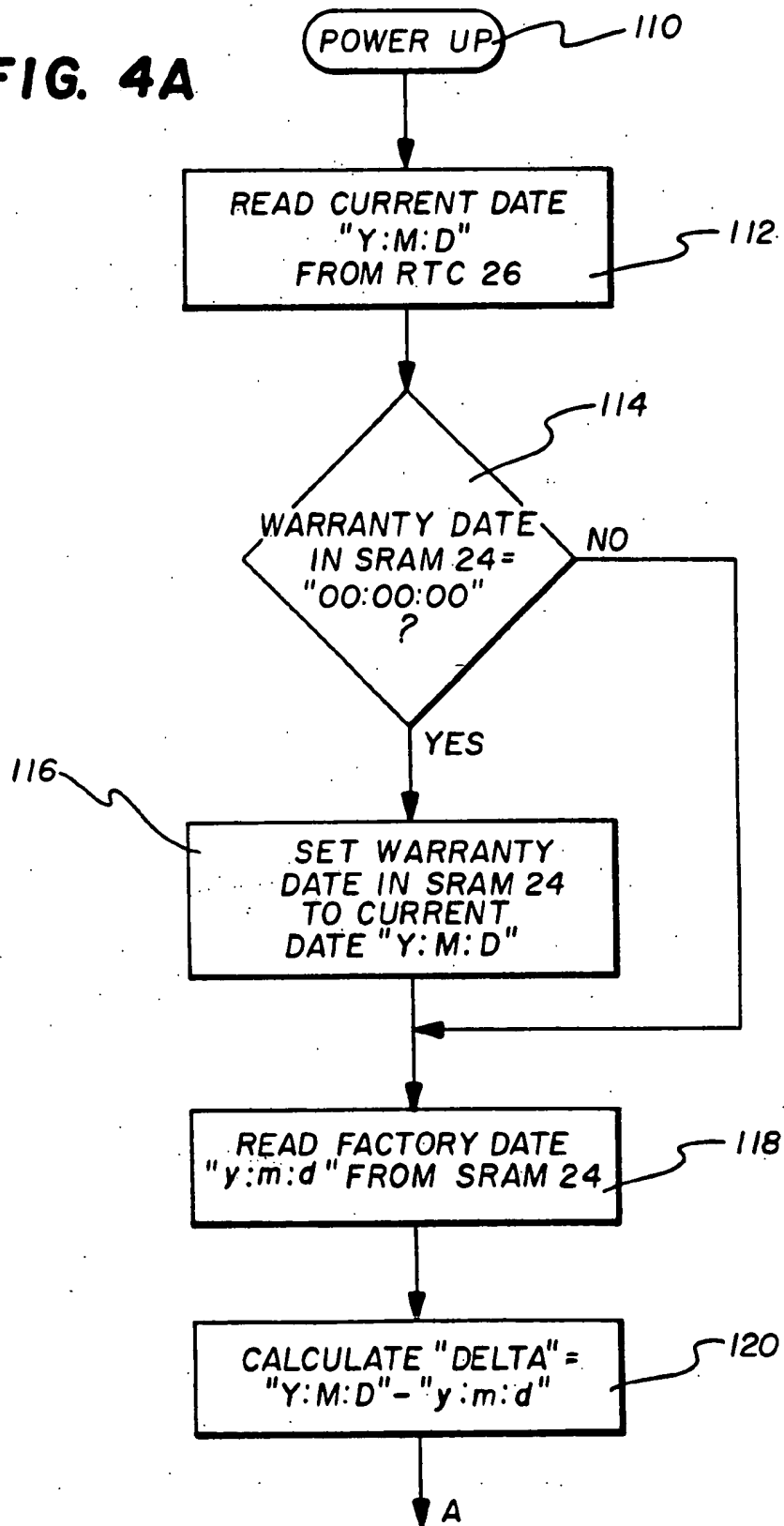
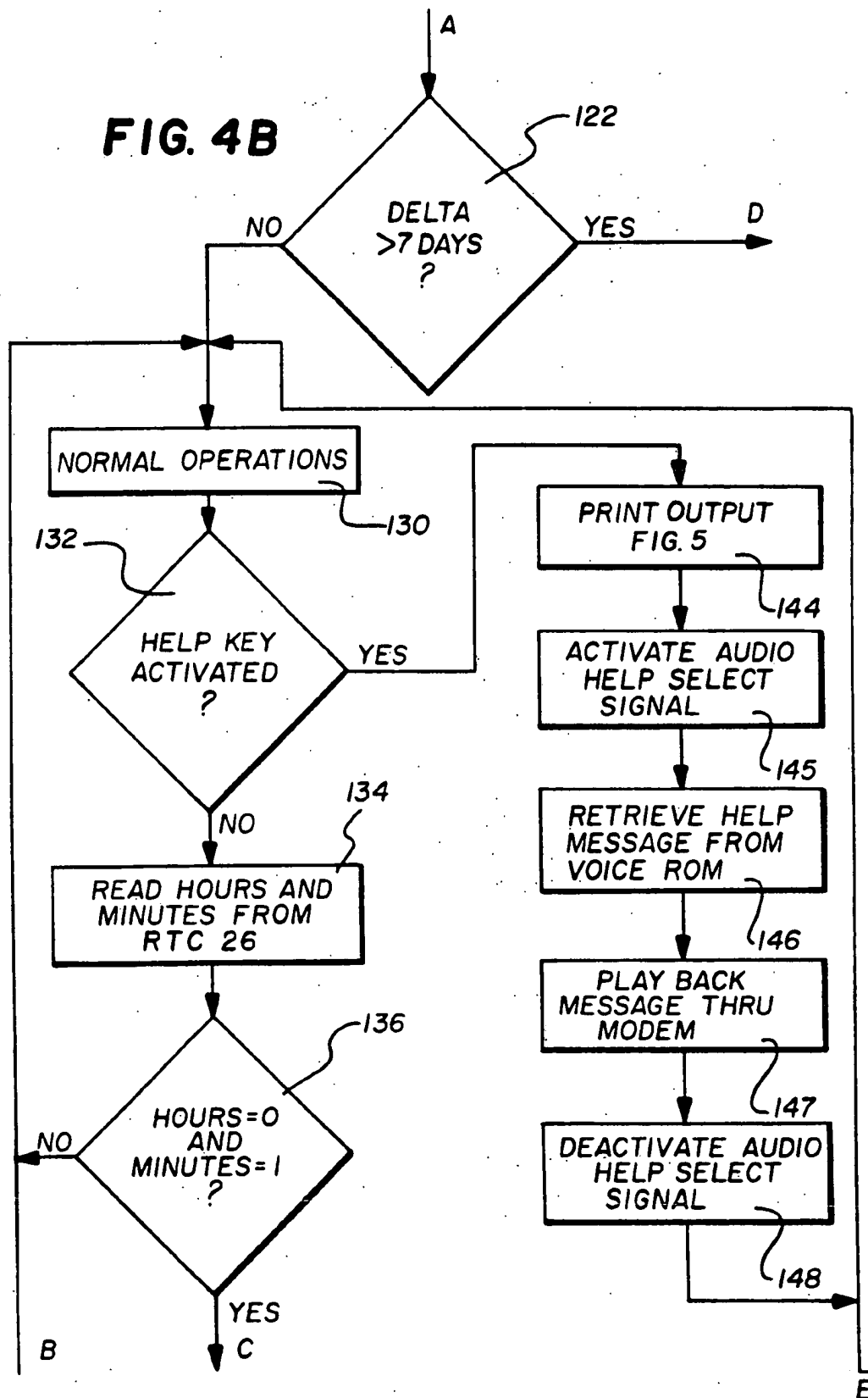
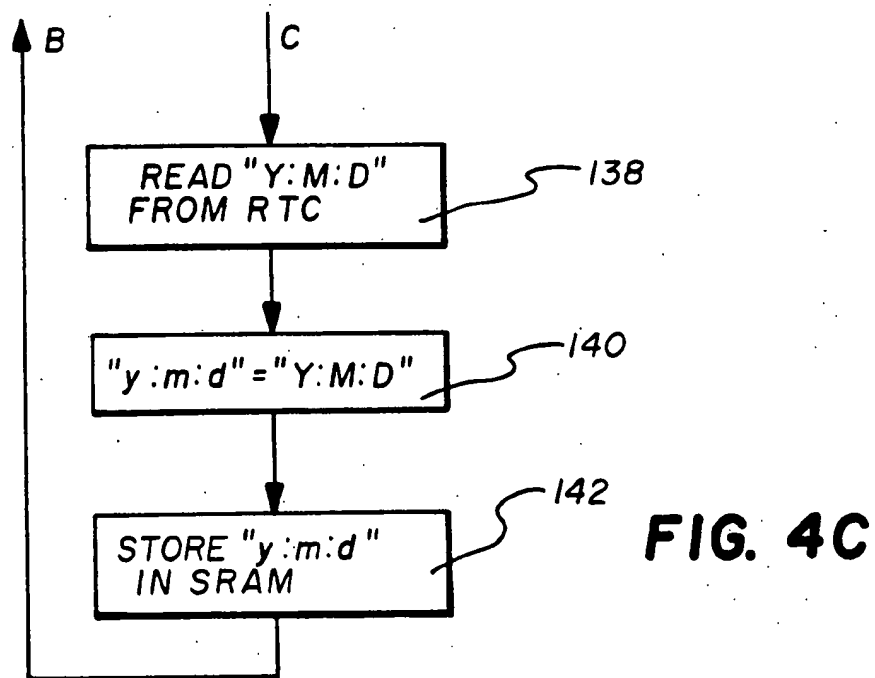
FIG. 4A

FIG. 4B



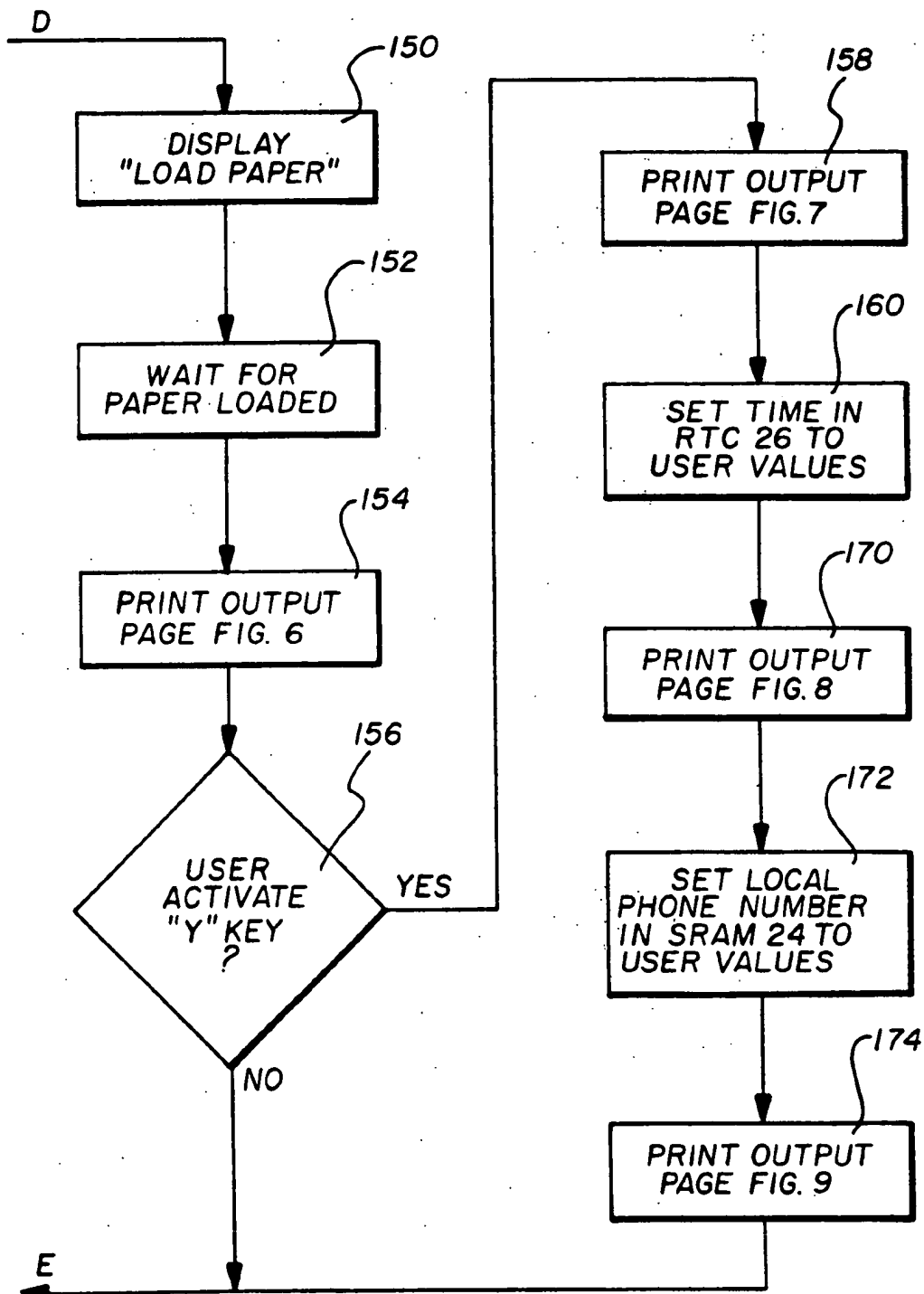
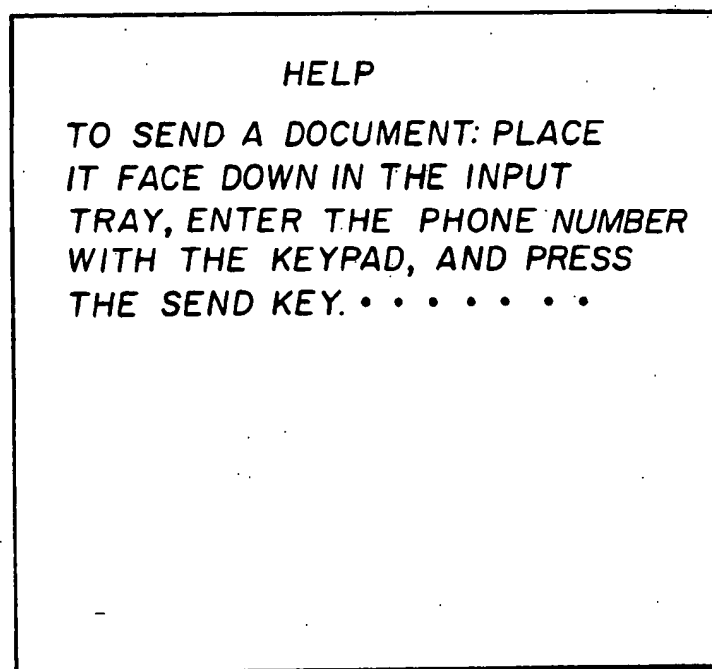


FIG. 4D

**FIG. 5**

MODEL NUMBER: XYZ678
SERIAL NUMBER: 776312
REVISION: 1.02

FOR INSTALLATION HELP
PRESS "Y"

OTHERWISE PRESS "N"

MANUFACTURED: 89-02-12
WARRANTY DATE: 89-06-03

RETAIN THIS SHEET FOR
YOUR RECORDS

FIG. 6

PRESS "SET TIME" TO CHANGE
CURRENT TIME, THEN PRESS
THE NUMBERS 0-9 FOR THE YEAR,
MONTH, DAY, HOUR, AND MINUTE;

EXAMPLE:

PRESS "SET TIME"
PRESS "89" (1989)
PRESS "10" (OCTOBER)
PRESS "02" (OCTOBER 2)
PRESS "09" (9:00 AM)
PRESS "30" (9:30 AM)
PRESS "Y"

FIG. 7

PRESS "MODE" THEN THE "3" KEY,
THIS WILL BEGIN ACCEPTING
THE PHONE NUMBER AT YOUR
LOCATION;

EXAMPLE:

PRESS "MODE"
PRESS "3"
PRESS "7167260000"
PRESS "Y"

FIG. 8

CONNECT THE PHONE LINE
TO THE PLUG LABELED
"LINE" ON THE REAR OF
THIS MACHINE.

FIG. 9

METHOD AND APPARATUS FOR ASSISTING IN THE INSTALLATION OF A FACSIMILE MACHINE

TECHNICAL FIELD

This invention generally relates to facsimile machines and, more particularly, to facsimile apparatus which are capable of assisting in its initial installation and aid the user during operation.

BACKGROUND OF THE INVENTION

Currently, most facsimile equipment come with a manual that has instructions for installation and setup of the machine. Purchasers that are unfamiliar with fax machines often find the instructions difficult and unwieldy and many read instructions only as a last resort.

Features offered in facsimile machines have steadily grown in complexity. Delayed sending, broadcast sending, calling other machines to request transmission and other enhanced options are now common. As the number and complexity of these enhancements increase, it becomes more difficult for a user to take advantage of them. Current instruction manuals require many pages to describe selecting and customizing the enhanced features of these machines.

As facsimile machines having even more advanced features and higher imaging quality emerge, one can clearly expect the initial installation and programming steps to become more complex.

DISCLOSURE OF THE INVENTION

The present invention, a preferred embodiment, comprises a stored program in a facsimile apparatus that provides information to assist an installer. A real time clock is used to provide elapsed time information. The elapsed time information is compared with a previously stored time period to determine if the elapsed time information is greater than the stored time period in which case a signal is generated. A memory holding the stored installation instruction in the form of images and text is addressed in response to the generated signal. The stored installation instructions are directed to the printer to provide a hardcopy of the installation instructions.

In another embodiment, the instructions are stored in the form of verbal instructions in a voice ROM (Read Only Memory) and in response to the signal from the comparing means, the stored instructions are directed to a telephone handset so as to communicate the verbal instructions to the installer.

In other embodiments, additional "help" information is stored in memory and can provide further information to either the installer or the operator by requesting it via a keyboard.

Accordingly, a facsimile machine using this invention would include a real time clock, a small amount of read/write non-volatile memory and a non-volatile read only memory. It is necessary that the clock operate at all times (i.e. battery powered). During manufacture and testing, the real time clock would be set to the current time and date. In addition, the current date would be stored in the read/write non-volatile memory, requiring perhaps 6 bytes. After test, the machine would be powered off, shipped and possibly stored in distribution channels and inventory. During this time period, the clock would continue to operate, and the

data stored in the non-volatile memory would be maintained.

Subsequently, each time the machine is powered up, the current time and date from the real time clock would be compared to the data stored in the read/write non-volatile memory. Comparison would reveal the elapsed time from the last time the machine was turned on and the current operation of the machine. If the elapsed time is less than some fixed time period (i.e. 1 week), the new time would be stored in the read/write non-volatile memory and the normal operation of the machine would proceed. During normal operation of the machine, the data stored in the non-volatile memory would be updated every 24 hours.

When the elapsed time exceeds the limit, it would be assumed that (for example) the machine has been moved to, or installed in a new location. In response to the assumption, an installation sequence would begin by printing an introduction sheet indicating the model, serial number and features of the machine, and the steps that the installer must perform before proceeding. A series of steps could be outlined either on the display or on a printout requesting the user to enter the necessary information before normal operation could continue.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a block diagram of a facsimile machine according to the present invention;

FIG. 2 is a view of the display panel and keypad used by the operator;

FIG. 3 illustrates a sequence of steps performed during final assembly of the inventive apparatus;

FIGS. 4A-D illustrate a flowchart for the controlling software;

FIG. 5 shows a sample help page output;

FIG. 6 shows a sample of a model number and serial number output page;

FIG. 7 shows a sample help sheet instructing the installer how to set the current local time;

FIG. 8 shows a sample help sheet instructing the installer how to set the local phone number; and

FIG. 9 shows a sample help sheet instructing the installer how to connect the machine to the phone line.

DETAILED DESCRIPTION OF THE INVENTION

FIG. 1 illustrates a block diagram of the inventive system 10. A central processing unit 12 controls all functions of the machine. The public switched telephone network (PSTN) is connected to the machine via the signal pair 1. A double pole double throw (DPDT) relay 2 is connected as shown, with the common terminals of this relay are connected to data access arrangement (DAA) 16 and to an external phone (not shown) via the wire pair 3. Relay 2 has two positions; "normal", and "audio help", a position is selected by the audio help select signal on line 7 from CPU 12.

Relay 2 is shown in the "audio help" position. This position connects DC voltage source 6 thru current limiting resistor 5 and AC blocking inductor 4 to the signal pair 3. When relay 2 is in the "audio help" position, voltage source 6 supplies DC power to the external phone. When relay 2 is in the "normal" position signal pair 1 from the PSTN is connected via signal pair 3 to the external phone and to data access arrangement (DAA) 16.

Modem 18 has the capability to interface over the PSTN with other facsimile machines using standard and

well known protocols. Also, modem 18 can detect and generate dual tone multiple frequency (DTMF) signals used for phone number dialing. Modem 18 can also generate audio signals from digitized speech data stored in read only memory 27.

Volatile read/write memory 20 is provided for normal software calculations, and storage of received images. A battery 22 is provided to maintain accurate data in static random access memory 24 (SRAM). A real time clock 26 (RTC) also operates from the battery power and provides continuous time information. Battery 22 provides for reliable operation of the SRAM 24 and the RTC 26 even while power to the CPU 12 and other devices is not present. The real time clock 26 is programmed in a 24 hour format (i.e. the hour variable increments from 0 to 23). It should be noted that the SRAM 24 could be replaced by other forms of non-volatile memory devices, such as: EEPROM, harddisk, or ferroelectric memory.

A read only memory 28 (ROM) contains operating software, and a second ROM 30 contains font data used in printing hardcopy output page 36 containing installation information using the output printer 34. Output printer 34 produces output page 36 which may also comprise received image data, or other information. Input scanner 32 is provided for reading documents into the facsimile machine for transmission. User or operator interface with this machine is provided via a display 38 and a keypad 40.

FIG. 2 depicts the display 38 and keypad 40 used for user interfacing. The current month is displayed at location 50, the current day at 54, current hour at 56, and the current minute at location 58. A message is located at position 60, as illustrated by the example message "LOAD PAPER". Ten numeric keys 71 are present on the keypad 40 for entering phone numbers, etc. Also, there are 5 function keys 81-85. A send button 86 completes the buttons on the keypad.

FIG. 3 depicts a series of steps performed along with other final testing steps during manufacture of this machine. After all other necessary testing steps are complete, this processes is begun at block 100 which occurs with the machine operating normally; final test complete. A first operation at block 102 consists of entering the current time and date into RTC 26 via the keypad 40 and display 38. This is accomplished by hitting key 81 labeled "SET TIME". CPU 12 responds by writing the message "ENTER DATA" on display 38 at location 60. The manufacturer now enters the year, month, date, hour, and minute using the numeric keys 70-79. As each of the ten digits are entered, CPU 12 verifies, displays, and programs them into the real time clock (RTC) 26. After ten digits are entered, the set time function is complete and CPU 12 writes the message "READY" on display 38 at location 60.

Block 104 in FIG. 3 illustrates the next step in the manufacturing process. The year, month, and date programmed into RTC 26 is read from RTC 26 and stored into battery backed up SRAM 24 taking up six bytes of memory. In the next step block 106, a "warranty date" is set to "00:00:00" and stored in the SRAM 24. Finally, in block 108 the machine is turned off, packaged and shipped. After this step, the RTC 26 continues to keep the correct time.

FIGS. 4A-D illustrate in a flowchart the software sequence followed from the time the machine is turned on.

Block 110 in FIG. 4A represents initial power up steps well known in the art including self tests and setting feature selections to defaults. Block 112 reads the current year designated "Y", the current month "M" and the current day "D" from the real time clock (RTC) 26. Next, block 114 checks to see if the "warranty date" is correctly stored in SRAM 26. If this variable is equal to "00:00:00" the function in block 116 is performed. Block 116 replaces the zero value of "warranty date" with the current date "Y:M:D" and stores this result in SRAM 24. This sequence of updating the "warranty date" will only occur once in the lifetime of this machine. Block 118 reads the "factory date" designated "y:m:d" from the SRAM 24. These are the values stored during the operations of FIG. 3.

In block 120 a calculation of the difference in days between "Y:M:D" and "y:m:d" is performed. This calculation is well known in the art. The result is "DELTA" which has units of days. Block 122 performs a comparison of "DELTA" to an arbitrary predefined limit (taken here to be 7 days).

FIGS. 4B and 4D detail the two possible sequences started in FIG. 4B. If "DELTA" is not greater than 7 days, block 130 is next and represents any normal facsimile machine operation including receiving and transmitting documents. In block 132, a check is made to see if the user has hit the "HELP" key 84 in FIG. 2. If the help key is struck execution proceeds at block 144 to be described later. If the "HELP" key is not struck the current hour and minute is read from the RTC 26 in block 134. Block 136 compares the current time to one minute past midnight. At any time during the day other than one minute past midnight, the control sequence returns to block 130 and performs normal facsimile machine operations. At one minute past midnight, the operations in blocks 138 thru 142 are carried out. Block 138 reads the new year, month and date from RTC 26. Block 140 replaces the factory date "y:m:d" with the current date "Y:M:D", and block 142 stores the factory date in the SRAM 24.

Block 144 corresponds to the action taken when the user requests help via the help button. One response is to print an output page of help data explaining the proper use of this machine, and how to select additional features. This output page would be stored in program ROM 28 in FIG. 1. A character generator algorithm would use this text data, along with font data stored in font ROM 30 in FIG. 1 to generate the output image data. Character generation is well known in the prior art and any of several methods could be used here. It should be understood that this help function could be expanded to include more pages, and to be programmed by a user. FIG. 5 depicts a possible help page, of course the specific information would vary with the type of machine, and could be printed in different languages.

An additional help function would be implemented as shown in Blocks 145-148. First, in block 145 the "audio help select" signal 7 is activated. This connects the external phone to modem 18 thru signal pair 3 and data access arrangement 16. Actions taken in block 146 retrieve an appropriate digitized help message from voice ROM 27 into volatile read/write memory 20. Block 147 depicts the playback of this message thru the digital to analog converter in modem 18. This is also well known in the art. After the playback of the message is complete "audio help select" signal 7 is deactivated to return DPDT relay 2 to the "normal" position.

While relay 2 is in the "normal" position, an operator could lift the external phone off the hook. This condition can be detected by data access arrangement 16. If the "off hook" condition persists for more than some predetermined period of time with no dialing activity, the "audio help" mode would begin automatically.

Branch "D" in FIG. 4D represents the control sequence executed when the elapsed time is greater than the arbitrary predetermined time as, for example, when an installation is detected as possibly being required. This path is taken when the machine has been turned off for more than the arbitrarily selected 7 day period in block 122. The first step of the installation procedure is executed in block 150 by displaying a "LOAD PAPER" message on the display 38 at location 60. Block 152 waits for the user to respond by loading paper into the machine. The combination of blocks 150 and 152 could also prompt the user to install other consumables necessary for printing (i.e. toner, etc.). Next, in block 154, a page is output using the above mentioned character generator algorithm. This page would contain useful information such as the warranty date for the machine, a serial number, etc. FIG. 6 illustrates one possible format for this page. This page would contain a prompt to the user allowing them to request or deny additional assistance with the installation procedure. Block 156 would wait for the user to strike either the "Y" key 82 (FIG. 2) or the "N" key on keypad 40. If the user hit the "N" key 83 (FIG. 2), operation would proceed to the normal operation block 130.

If the user accepted additional installation assistance, by hitting the "Y" key 82 (FIG. 2) in block 156, processing would proceed by printing another output page according to block 158. This page might explain that the user needs to correct the current time setting to reflect local time zone differences and prompt the user on the necessary steps. FIG. 7 illustrates some possible formats for this sheet. Block 160 would accept these new values from the numeric keys 71 on keypad 40, verify these values, and set the current time in RTC 26 accordingly.

An additional step shown in block 170 would be to print another output page (illustrated in FIG. 8). This page would prompt the user to enter the local phone number to be used in identifying this machine to calling, or called machines. Block 172 would again accept input from the user via the numeric keys 71 on keypad 40. These values would then be stored in SRAM 24 to be used for normal facsimile operations.

Block 174 would print a final output page describing the connection of the phone line to the machine. FIG. 9 illustrates one possible format for this page.

It is understood that more pages, and more prompts for action could be incorporated to setup additional features of this machine.

ADVANTAGES AND INDUSTRIAL APPLICABILITY

This invention will aid the installer with the initial installation and the operator with the operation of facsimile machines as the machine includes advanced features and higher imaging quality. The use of on board installation instructions and specific "help" features make it easier for both the installer and operator. Lost, damaged or misplaced instruction manuals will no longer present problems associated with machine use. Updated features can be provided at the time of manufacture without changing or obsoleting previously printed manuals.

What is claimed is:

1. A facsimile apparatus capable of providing information to assist an installer, said facsimile apparatus comprising:

- a) printing means for printing image and text information including installation instructions;
- b) clock means for providing elapsed time information indicating a length of time since the facsimile apparatus was last turned off;
- c) memory means for storing the installation instruction in the form of images and text;
- d) comparing means for comparing the elapsed time information received from said clock means with a previously stored time period, and for generating a first signal when the elapsed time is greater than said previously stored time period indicating that the facsimile apparatus may require installing;
- e) addressing means for addressing said memory means to access said installation instruction responsive to said first signal received from said comparing means;
- f) directing means for directing the installation instructions addressed by said addressing means to said printing means for printing a hard copy of the installation instructions for use by the installer; and
- g) said clock means, memory means, comparing means, addressing means, and directing means all being within a signal facsimile apparatus.

2. A facsimile apparatus as set forth in claim 1 wherein the apparatus further includes a keyboard and said memory means further includes stored help means for providing additional information to the installer when requested via said keyboard.

3. The facsimile apparatus as set forth in claim 2 wherein said memory means further includes a voice ROM for storing voice installation instructions to assist the installer audibly.

4. The facsimile apparatus as set forth in claim 3 wherein said apparatus further includes a telephone handset for providing verbal communications using said voice installation instructions stored in said voice ROM.

5. The facsimile apparatus as set forth in claim 2 wherein said memory means comprises a program ROM.

6. The facsimile apparatus as set forth in claim 5 wherein the apparatus further includes a keyboard and said memory means further include stored help means for providing additional information to the installer when requested via said keyboard.

7. A facsimile apparatus capable of providing information to assist an installer in the installation of said facsimile apparatus, said facsimile apparatus comprising:

- a) a telephone handset;
- b) memory means for storing installation instruction including verbal instructions;
- c) clock means for providing elapsed time information indicating a length of time since the facsimile apparatus was last turned off;
- d) comparing means for comparing the elapsed time information received from said clock means with a previously stored time period, and for generating a first signal when the elapsed time is greater than said previously stored time period indicating that the facsimile apparatus may require installing;
- e) addressing means for addressing said memory means to access said installation instructions responsive to said first signal;

7

f) directing means for directing the installation instructions addressed by said addressing means to said telephone and set to communicate the verbal instructions to said installer; and

g) said clock means, memory means, comparing means, addressing means, and directing means all being within a signal facsimile apparatus.

8. The facsimile apparatus as set forth in claim 7 wherein said memory means further includes image/- text means for storing image and text information associated with the installation instructions.

9. The facsimile apparatus as set forth in claim 8 wherein said apparatus further includes printing means for printing said image and text information sent to it by said directing means from said memory means.

10. The facsimile apparatus as set forth in claim 8 wherein said memory means comprises a voice ROM and said image/text means comprises a program ROM.

11. A facsimile apparatus, comprising:

a) clock means for determining a time period since the facsimile apparatus has been last turned off;

8

b) comparing means for comparing said time period received from said clock means to a predetermined time period, and for providing predetermined installation instructions when said time period is greater than said predetermined time period, assisting in installation of the facsimile apparatus; and
c) said clock means and said comparing means being within a single facsimile apparatus.

12. A facsimile apparatus as set forth in claim 11, wherein said predetermined time period includes first and second predetermined time periods, wherein said predetermined installation instructions include first and second predetermined installation instructions corresponding to said first and second predetermined time periods, respectively, and wherein said comparing means provides said first predetermined installation instruction when said time period is greater than said first predetermined time period, and provides said second predetermined installation instruction when said time period is greater than said second predetermined time period.

* * * * *